

**Draft Summary of the Environmental Work Group Meeting  
Oroville Facilities Relicensing (FERC Project No. 2100)  
April 23, 2003**

The Department of Water Resources (DWR) hosted a meeting for the Environmental Work Group (EWG) on April 23, 2003 in Oroville.

A summary of the discussion, decisions made, and action items is provided below. This summary is not intended to be a transcript, analysis of the meeting, or to indicate agreement or disagreement with any of the items summarized, except where expressly stated. The intent is to present a summary for interested parties who could not attend the meeting. The following are attachments to this summary:

Attachment 1	Meeting Agenda
Attachment 2	Meeting Attendees
Attachment 3	Flip Chart Notes
Attachment 4	Interim Report SP- T7
Attachment 5	Interim Report SP-F10, Task 1E
Attachment 6	Interim Report SP-F1, Task 1
Attachment 7	Progress presentation on SP-G1: Effects of Project Operations on Geomorphic Processes Upstream of Oroville Dam
Attachment 8	Progress presentation on SP-G2: Effects of Project Operations on Geomorphic Processes Downstream of Oroville Dam
Attachment 9	Draft Resource Action Development for Geographic Area
Attachment 10	Draft Resource Action Matrix
Attachment 11	Draft Attribute Table for Environmental Work Group Discussion

## **I. Introduction**

Attendees were welcomed to the EWG meeting. Attendees introduced themselves and their affiliations. The desired outcomes of the meeting were discussed as listed on the meeting agenda. The Facilitator noted that since there was no Plenary Group meeting this month, the third agenda item has been changed to an update on Engineering and Operations Work Group benchmark scenarios for preliminary operations model runs. The meeting agenda and list of meeting attendees are appended to this summary as Attachments 1 and 2, respectively. Meeting flip chart notes are included as Attachment 3.

## **II. Action Items – March 26, 2003 Environmental Work Group Meeting**

A summary of the March 26, 2003 EWG meeting is posted on the relicensing web site. The Facilitator reviewed the status of action items from that meeting as follows:

<b>Action Item #E82:</b>	Reorganize and integrate last two geographic areas
<b>Responsible:</b>	DWR
<b>Status:</b>	This action item is part of a meeting agenda item. See discussion section V below.
<b>Action Item #E83:</b>	Develop attribute tables
<b>Responsible:</b>	DWR
<b>Status:</b>	This action item is part of a meeting agenda item. See discussion section V below.
<b>Action Item #E84:</b>	Develop matrix to aggregate information
<b>Responsible:</b>	DWR
<b>Status:</b>	This action item is part of a meeting agenda item. See discussion section V below.

### **III. Update on Benchmark Scenarios for Operations Model Runs**

Curtis Creel, Operations Resource Area Manager and Modeling Coordinator with DWR reported that his staff has completed benchmark runs for the statewide model, CALSIM II and are checking output. The local operations model should be finished this month and testing will begin early next month. He explained the development of modeling scenarios and requested involvement by the EWG to minimize the number of runs necessary. It could take two to four weeks to run each scenario, as iterations between models will be necessary. He described the initial list of scenarios being developed to evaluate how sensitive variables in the system are to perturbations. He described the various scenarios and explained that he would be looking to the EWG for help in defining variables. For example, he expects to run a scenario that sends some amount of water down the Low Flow Channel during certain times of the year but he needs the EWG to help quantify the amount of water and timing of the releases. Terry Mills responded that he expects a draft report on the IFIM study in May and that preliminary data should provide the flow values.

Curtis expects the temperature sensitivity scenario runs to be available in mid-August and runs on the set of scenarios to evaluate how sensitive Oroville lake levels are to varying levels of supply demand to be available next month. He described the use of the HEC 5 model from the Corps of Engineers to rout flood events through the reservoir and explained that this analysis is somewhat specialized and doesn't utilize the traditional operations models. He suggested that if the EWG could build their requests on existing scenarios, the model runs would be accomplished more efficiently. He expects to work closely with the EWG to make sure that the output provides information needed by the work group. Curtis confirmed that the temperature model extends to the mouth of the Feather River and may be able to accommodate proposed structural changes in the Afterbay under consideration by Butte County. He also explained briefly the use of the 2030 level of development in the CALSIM II simulations and the consistency with Bulletin 160-03 that this approach provides. He described a modeling workshop to be held in June to explain the operations models and to review early benchmark runs and suggested that further discussion of the 2030 planning conditions should occur then when representatives from Planning can address any questions participants have. The modeling workshop in June will be followed by a more in-depth workshop during the week of August 11-15 where participants will step through the scenarios to see first round run results and begin discussing the results in relation to proposed resource actions.

### **IV. Study Deliverables and Implementation Updates**

#### *Study Methodology*

Terry Mills reported that after testing some of the study methods described in the study plans, some study leads have found the need to change the methods or alter the approved methods and DWR wanted to make the EWG aware of when and what changes are necessary. He noted that SP-F10 methodology would be discussed later at this meeting. Gail Kuenster, botanical study lead for DWR added that she will suggest a need to change the study area for SP-T7 during her update later at this meeting and she also noted that the study area for SP-T2 should be adjusted but she would prefer to discuss it at the next EWG meeting and have Linnea Hansen from the USFS in attendance. The Facilitator will add SP-T2 to the May EWG meeting agenda.

#### *SP-T7*

Gail Kuenster distributed Interim Report SP- T7 (Attachment 4). She described the effort designed to determine project effects on the establishment and spread of noxious weed species. Progress to date includes compilation of species lists from agencies, literature review, ongoing mapping in conjunction with other vegetation mapping efforts, and initiation of individual species evaluations. The study plan originally identified the survey area as including the project lands and adjacent

lands within ½ mile of the project boundary. Gail noted that most of these lands are private lands or part of the city of Oroville and not appropriately included in this study. The boundary may have been set to capture the lands along irrigation canals outside of the project boundary that may be impacted by the spread of noxious weed species through water deliveries from the project. Gail suggested that downstream mapping of the 100-year floodplain would remain the same as described in the study plan but she would modify the upstream survey areas to exclude urban areas, private lands, and lands that are too steep and unstable to safely survey. Eric Theiss with NOAA Fisheries suggested the EWG could give the study lead discretionary authority to map only those areas that are within the ½ mile zone considered relevant to the study plan goals.

Woody Elliot with Department of Parks and Recreation noted that since weeds don't respect boundaries, perhaps an approach that looks at each target weed species and follows their occurrence would be useful because eradication efforts will need to consider adjacent non-treated properties. Gail suggested she would continue to look for the weed species outside of the project area but would evaluate them qualitatively. She agreed that the extent of certain weeds would affect the success of eradication efforts on project lands. Rich DeHaven with USFWS stated their desire to see a long-term monitoring and eradication program as a PM&E and suggested the EWG review the Lower American River Management Plan as an example. The USFWS are primarily concerned with Tree of Heaven and Scarlet Wisteria, both of which can adversely impact an aquatic community.

Terry Mills asked how the data collection efforts would assist in the development of PM&Es. Gail responded that the mapping exercise will provide information on how widespread the weed species are and the literature review will identify control methods. Eric Theiss suggested that Gail provide a brief write-up of the problem species to be incorporated into a PM&E. Wayne Dyok with the consulting team suggested that this discussion could be continued later at this meeting during the PM&E development agenda item.

Terry Mills asked how the EWG should document study methodology changes. The EWG discussed the need to document any changes agreed to by the EWG and agreed that changes would be captured in the original study designs possibly in redlined/strikeouts format.

#### *SP-F10, Task 1E*

Dave Olson with the consulting team distributed Interim Report SP-F10, Task 1E (Attachment 5) and described this effort to identify and characterize spring-run Chinook salmon holding habitat. A literature review was conducted to determine suitable water temperature, dissolved oxygen, depth, substrate and water velocity for adult holding habitat and then an analysis was conducted to determine the existence, location and distribution of suitable holding habitat in the Feather River below Oroville Dam. Maps from SP-G2 were not available so pools were selected using best professional judgment. He reported that temperatures varied in the pools sampled but it appeared that temperatures below 14° C were suitable while above 17° C temperatures usually precipitated detrimental effects. In between is a gray area where some effects have been reported but they are not considered lethal. He also noted that much of the temperature data was lost and a larger data set would be needed to accurately draw conclusions on availability of suitable holding habitat. Cover and velocity data will be collected this year.

Mike Meinz with Department of Fish and Game asked why the study stopped at the Thermalito Diversion Dam rather than the Fish Barrier Dam. Dave responded that they still needed to collect data on the Fish Barrier pool. Mike also noted that even if temperature appears to be in the suitable range, velocities could increase and render the pools unsuitable. Eric Theiss asked for the pool sizes and Dave responded that Jerry Boles with DWR had chosen the largest and deepest pools. Eric noted that the fish can hold in shallow pools depending on the environment and he would like to see the pool metrics including depth, length, area, etc. included on mesohabitat

maps. He added that he is comfortable putting less emphasis on dissolved oxygen in the main channel of the Low Flow Channel but wanted to answer the question of whether there is enough habitat for spring-run. Dave reminded the participants that the habitat utilization portion of the study has not been completed. Wayne Dyok asked if the temperature data from the riffle/run study correlated with the temperature data from the pool study. Jerry stated that because the temperature sensors are in the transition zone between riffles and runs, he feels that the temperatures in the pools correlate with the measured temperatures at the gages. Mike Mainz reported that fish in Butte Creek hold in much warmer water so they may want to look at this to refine the water temperature criteria.

#### *SP-F1, Task 1*

Draft Initial Progress Report on the Evaluation of Project Effects on Non-Fish Aquatic Resources (Attachment 6) was distributed to the participants and discussed by Troy Baker and Mary Lou Keefe with the consulting team. Troy described the review of existing literature, field studies and Project data included in this report. Participants were directed to Section 5.0 of the progress report that provides preliminary study results. Results indicate that highest taxa richness occurred in tributaries to Lake Oroville while lowest taxa richness occurred at the collection site upstream of the Feather River Fish Hatchery. Diversity is similar to Sacramento-San Joaquin river systems. Anna Kastner with DFG noted that the Feather River Fish Hatchery could accommodate 16,000 to 24,000 fish annually, not the 8,000 indicated in the report; the report will be corrected.

#### *SP-G1*

Jonathan Mulder with DWR provided copies of Progress Report SP-G1 Effects of Project Operations on Geomorphic Processes Upstream of Oroville Dam (see Attachment 7) and described the efforts to complete tasks 2 and 3. The channel resources in the tributaries above Oroville Dam have been mapped and the reservoir cross-sections re-surveyed to determine sediment in storage (current surveys compared to surveys from 1971, 1993-94). They are currently analyzing the data but preliminary results indicate erosion in the upper reaches of the tributaries in 2002. A sediment wedge occurs near Berry Creek and it appears to have moved downstream since 1977. Another wedge appears to have moved material from the 1997 floods. Jonathan noted that major sediment events occur as pulses and added he hopes to produce a map that identifies high, medium and low bank erosion potential around the reservoir.

#### *SP-G2- Fluvial 12*

Bruce Ross with DWR discussed preliminary data collection and analysis described in the Interim Progress Report on SP-G2: Effects of Project Operations on Geomorphic Processes Downstream of Oroville Dam (Attachment 8). He explained that the Corps of Engineers has the channel mapped to 2-foot contours and mesohabitat mapping has been completed to the confluence with the Yuba River. Rosgen classifications were based on entrenchment, width, depth and slope information. Terry Mills asked how the channel has changed and if it is stable. Bruce responded that the channel has become wider and shallower since 1971. Since 1982 two riffles have disappeared completely. The average substrate size increased from 55 mm in 1960 to approximately 160 mm today and this coarsening layer is advancing downstream. It may have reached equilibrium in the upper reaches but the substrate is pea-size gravel from Gridley south and coarsening and armoring is occurring.

Terry Mills asked how much flow is needed to move gravel. The Fluvial 12 model should provide that information once calibration is complete. Bruce Ross noted that there are existing redd structures in the low flow channel so no flow since 1997 has been high enough to redistribute the gravel. Currently the gravel is in the 4-6-inch range which is the upper limit that salmon can utilize and likely too large for steelhead use. He added that the IHA should be done in two to three months and DWR would like to investigate doing similar actions as on the Sacramento River to

allow for bank erosion and bank swallow habitat, riparian vegetation colonization, cottonwood regeneration, and gravel movement if we provide a source.

#### *SP-F9*

Michael Perrone with DWR updated the EWG on the status of SP-F9. Regarding Tasks 6 and 7 involving genetic analysis, the salmon analysis is on track and a report is expected in July 2003. Steelhead analysis will not be completed until October 2003. Tasks 8-11 include the collection and analysis of coded wire tags (CWT). Results will be presented at the hatchery meeting in June. Further discussion regarding an approach to the Feather River Fish Hatchery studies will take place at the hatchery meeting scheduled for April 24 (tomorrow).

#### *SP-W2*

Jerry Boles with DWR provided an update on data collections efforts and preliminary results for metals and organic constituents in project waters. He described the near-shore sampling techniques, target species, and catch results. Lab analysis indicates a number of elevated mercury levels in samples from the reservoir. Jerry reminded the group that the EPA criterion in fish is 0.3ppm mercury while the SWRCB uses a 0.37 mg/kg threshold. He would expect the Office of Environmental Health and Hazard Assessment (OEHHA) to be interested in looking at the data and potentially conducting additional testing before considering a public health hazard warning. Jerry added that OEHHA expects to see elevated mercury levels in west slope Sierra reservoirs due to the extensive use of mercury in mining activities in the watersheds.

Jerry reported that spotted bass appear to accumulate more mercury per weight than largemouth bass. Eric See with DWR noted that smallmouth bass will grow faster in the reservoirs due to the water temperature and smallmouth bass are also not as long-lived as largemouth bass.

The EWG discussed the preliminary results and the need to consider Phase 2 sampling and decided to form a small focused group with technical expertise, similar to the one formed to discuss the fish sampling targets, which could develop a strategy for Phase 2. Jerry Boles will take the lead in assembling a small task force to develop a recommendation for Phase 2 and report back to the EWG.

#### *SP-W7*

Jerry Boles briefly updated the EWG on SP-W7 and indicated they are going to develop maps of mosquito spray areas but not much is known about the ecological effects of the products left after the breakdown of the chemicals in use.

## **V. Geographic Area Discussion**

Terry distributed two documents: Draft Resource Action Development for Geographic Area, April 23, 2003 (Attachment 9) and the Draft Resource Action Matrix revised April 12, 2003 (Attachment 10). Wayne Dyok explained that the matrix has been stratified by resource goal and described the column headings. Eric Theiss suggested that we not be concerned with the PM&E column or note that it is for CEQA purposes only. Sharon Stohrer with SWRQB asked if competing solutions could be developed. The EWG agreed that for a specific issue, multiple solutions may be suggested that will be evaluated and the result may be a number of different actions or agreement on a preferred action to move forward.

Wayne suggested that the EWG work through the matrix and focus on those proposed resource actions not previously discussed in the work group. The EWG began reviewing the proposed resource actions and regarding EWG 10, Wayne explained the proposal is to install a device at the Thermalito Afterbay Outlet to prevent stocked rainbows from mixing with steelhead. Eric See suggested that to protect steelhead from rainbows, action should focus on the Thermalito Diversion

Dam whereas if you want to get rid of bass or pikeminnow, a screen at the Thermalito Afterbay Outlet may be appropriate. However, he questioned if this has been identified as a problem.

After the EWG briefly reviewed many of the resource actions, Eric Theiss confirmed that the EWG would be able to add new proposals if appropriate. The EWG suggested additional columns for the matrix to identify if information is coming from studies or if additional information on the particular resource action is needed. The EWG liked the organization of the matrix and suggested that the goal narrative be organized by the same headings. DWR and the consulting team will consider revising the documents to mirror one another.

Wayne Dyok distributed Draft Attribute Table for Environmental Work Group Discussion (Attachment 12) and asked the EWG to review it and be prepared to discuss it at the next EWG meeting. He would prefer to receive comments prior to the next meeting. Sharon Stohrer pointed out that the attribute table was focused on flow development only and asked if the other attributes of the system such as recreation would be integrated at some point. Others asked about the connections between attributes and how the table would be used when benefiting one attribute can impact another. Wayne noted that the goal was not to represent all of the connections within this table but to highlight those environmental attributes of the system that should be considered when making decisions about resource actions. Comments on the attribute table should be sent to Terry Mills prior to the next EWG meeting.

Eric Theiss reported that NOAA fisheries is close to submitting a PM&E for passage and requested 15 minutes on the next EWG meeting agenda to present the resource action. The Facilitator agreed to add the item to the agenda and also noted that several study plans need to discuss revised methodology at the next meeting, including T7, T2 and F10.

## **VI. Next Steps**

Terry Mills suggested that perhaps task forces would be more efficient at sorting out the resource actions and discussing the technical aspects. The EWG identified two task forces composed of the following individuals to begin discussions of fishery resource actions and terrestrial resource actions:

Fisheries: Eric See, Eric Theiss, Mike Mainz, Mike Melanson, Sharon Stohrer, Chuck Hanson, Rich DeHaven, Terry Mills.

Terrestrial: Terry Mills, Mike Melanson, Mike Mainz, Woody Elliot, Dave Bogener, Gail Kuenster.

The task forces agreed to meet as follows:

Fisheries Task Force

Date: May 7

Time: 1 - 3pm

Location: Videoconferences between the Oroville Field Division and Joint Operations Center, Sacramento

Terrestrial Task Force

Date: May 8

Time: 10am - 1pm

Location: Videoconferences between the Oroville Field Division and Joint Operations Center, Sacramento

The participants agreed that the May Environmental Work Group meeting would be:

Date: May 21, 2003

Time: 8:30 a.m. – 3:30 p.m. (Note earlier start time)

Location: Oroville Field Division

Terry Mills announced that Michael Perrone has accepted a promotion and will be leaving the relicensing process sometime in the next six weeks. The EWG thanked Michael for his efforts and contribution to the collaborative.

### **Action Items**

The following action items identified by the Environmental Work Group includes a description of the action, the participant responsible for the action, and due date.

**Action Item #E85:** Form a small focused group of participants with technical expertise to develop a recommended strategy for Phase 2 of SP-W2.

**Responsible:** DWR

**Due Date:** May 20, 2003

**Action Item #E86:** Consider revising the matrix and goals narrative to use common headers

**Responsible:** DWR/Consulting team

**Due Date:** April 23, 2003

**Action Item #E87:** Convene task forces to evaluate fisheries and terrestrial resource actions

**Responsible:** DWR/Identified EWG participants

**Due Date:** May 7 and 8, 2003